



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/576,054

04/18/2006

Naoya Tanaka

10921.399USWO

2150

52835

7590

02/23/2009

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.

P.O. BOX 2902

MINNEAPOLIS, MN 55402-0902

EXAMINER

AYCHILLHUM, ANDARGIE M

ART UNIT

PAPER NUMBER

2841

MAIL DATE

DELIVERY MODE

02/23/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/576,054	<b>Applicant(s)</b> TANAKA, NAOYA	
	<b>Examiner</b> ANDARGIE M. AYCHILLHUM	<b>Art Unit</b> 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/18/2006</u>  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 8-17 are rejected under 35 U.S.C 103 as being unpatentable over Fields et al. (US 4,821,007) in view of Annamalai et al. (US 6,798,168 B1).

**Pertaining to claim 8**, Fields et al. discloses an elongate Wiring board (10, see figs. 1-3) having a first end and a second end (see figs. 1-3) ; wherein the wiring board (10) includes an intermediate stress concentrating portion (middle of 1A, see below Fields et al. fig. 1) located between the first (end of 1A) and second ends (end of 1B), a first mounting portion located between the first end and the intermediate stress concentrating portion (between 1A and 1B), and a second mounting portion located

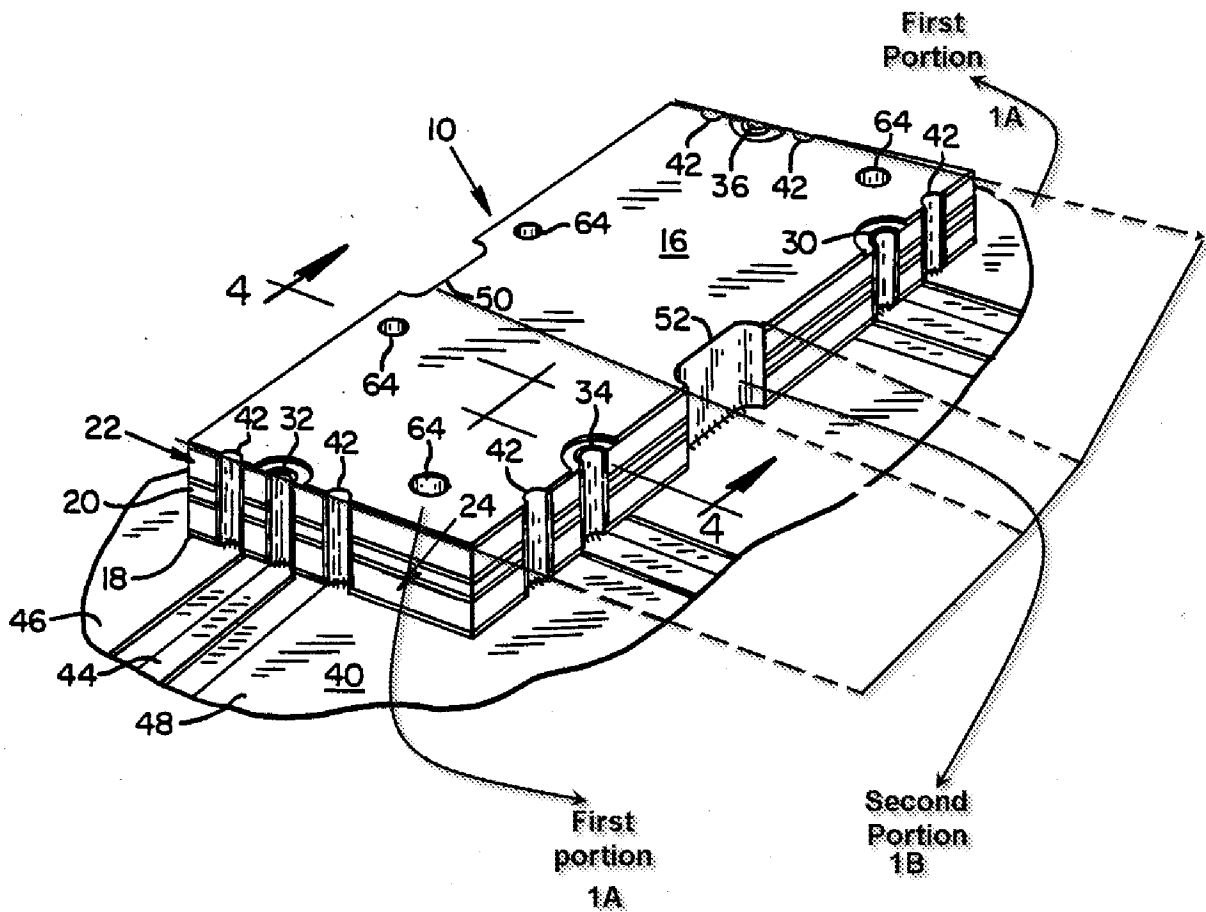
Art Unit: 2841

between the second end and the intermediate stress concentrating portion (the other sides of 1A and 1B), the intermediate stress concentrating portion having a smaller cross section than the first and second mounting portions (see Fields figs. 1-3);

But, Fields et al. does not disclose an electronic component mounted on the wiring board and a first and a second bendable terminal plate attached to the first and the second end of the wiring board.

However, Annamalai et al. discloses an electronic component (100, see Annamalai et al. fig. 1) mounted on the wiring board (see fig. 1) and a first (20) and a second bendable terminal plate (20) attached to the first and the second end of the wiring board (see Annamalai et al. fig. 1).

Therefore, it would be obvious to one having ordinary skill in the art at the time the invention was made to provide an electronic component with first and second bendable terminal plate attached to the first and the second end of the wiring board of Fields et al. based on the teachings of Annamalai et al. The motivation being in order to provide circuit components and bendable terminal plate attach to the wiring board that have different require functions, such as interconnections, signal amplification, and/or processing.



**Pertaining to claim 9**, Fields et al. as modified by Annamalai et al further discloses a second stress concentrating portion (between 1A and 1B, see Fields et al. fig. 1 above) located between the first end of the wiring board (10 of Fields) and the intermediate stress concentrating portion, and a third stress concentrating portion located between the second end of the wiring board (1B) and the intermediate stress concentrating portion; wherein the first electronic component (100 of Annamalai et al) is

Art Unit: 2841

mounted on the first mounting portion of fire wiring board (100 of Fields) between the second stress concentrating portion and the intermediate stress concentrating portion, and the second electronic component (100, see Annamalai et al. fig. 1) is mounted on the second mounting portion of the wiring board (100) between the third stress concentrating portion (between 1B and 1A) and the intermediate stress concentrating portion (between 1A and 1B).

**Pertaining to claim 10**, Fields et al. discloses the intermediate stress concentrating portion (between 1A and 1B, see Fields et al. fig. above) comprises a recess (below 52) (see figs. 1-3) for partially reducing a width of the wiring board (100).

**Pertaining to claim 11**, Fields et al. discloses the intermediate stress concentrating portion (between 1A and 1B) comprises a hole (30, 32, 34 and 36, see figs. 1-3) penetrating the wiring board (100).

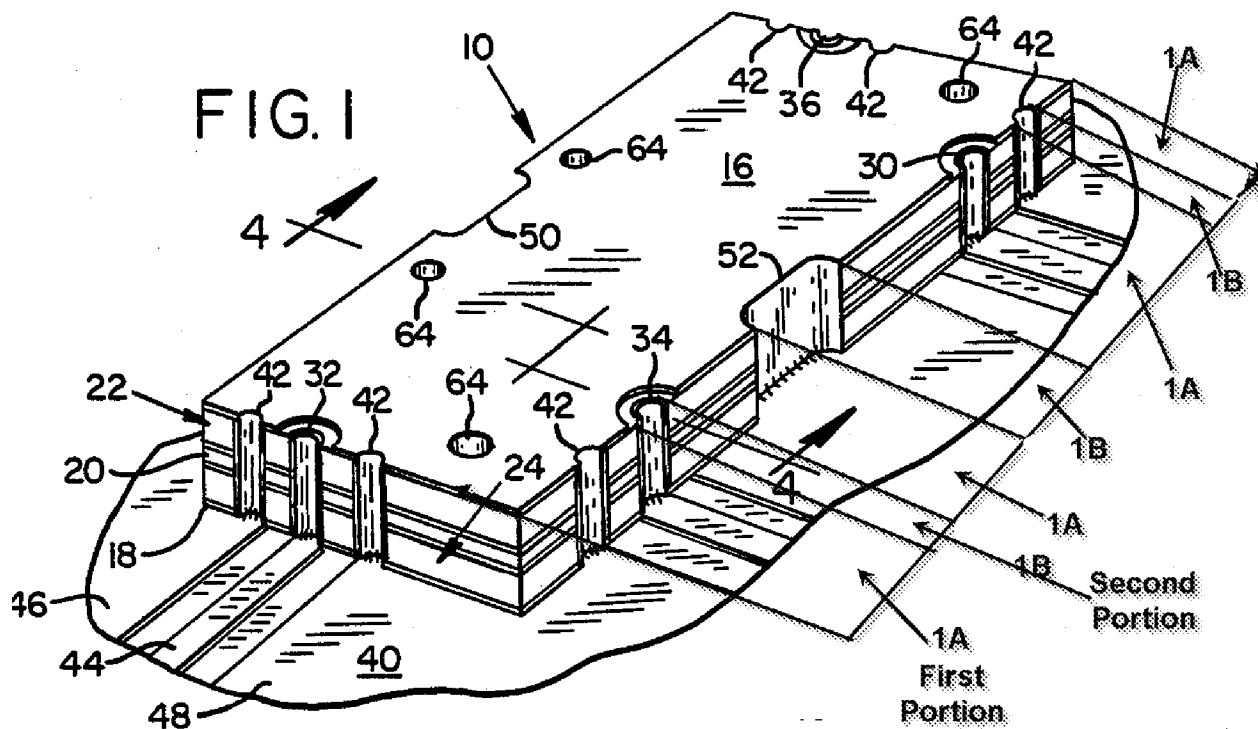
**Pertaining to claim 12**, Fields et al. discloses the wiring board (10) is provided with a groove (below 52) (see figs. 1-3) for partially reducing a thickness of the wiring board (10).

**Pertaining to claim 13**, Fields et al. as modified by Annamalai et al further discloses the groove (below 52 of Fields et al.) is formed in a surface of the wiring board

Art Unit: 2841

(10) that is opposite to another surface upon which the electronic component (100 of Annamalai et al) is mounted.

**Pertaining to claim 14**, Fields et al. discloses at least one of the intermediate stress concentration portion (between 1A and 1B, see Fields et al. fig. below), the second stress concentration portion (between 1B and 1A, see Fields et al. fig. below), and the third stress concentration portion (between 1B and 1A) comprises a recess (52) for partially reducing a width of the wiring board (10).



**Pertaining to claim 15**, Fields et al. further discloses at least one of the intermediate stress concentration portion (between 1A and 1B), the second stress concentration portion (between 1B and 1A), and the third stress concentration portion (between 1B and 1A) comprises a hole (32, 34) penetrating the wiring boards (10).

**Pertaining to claim 16**, Fields et al. further discloses at least one of the intermediate stress concentration portion (between 1A and 1B), the second stress concentration portion (between 1B and 1A), and the third stress concentration portion (between 1B and 1A) comprises a groove (below 52, see figs. 1-3) for partially reducing a thickness of the wiring board (10).

**Pertaining to claim 17**, Fields et al. further discloses at least one of the intermediate stress concentration portion (between 1A and 1B), the second stress concentration portion (between 1B and 1A), and the third stress concentration portion (between 1B and 1A) comprises a combination of a recess (52) and a groove (portion below 52), the recess partially reducing a width of the wiring board (10), the groove (the portion below 52, see fig. 1) partially reducing a thickness of the wiring board (10).

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims 8-17 have been considered but are moot in view of the new ground(s) of rejection.



***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDARGIE M. AYCHILLHUM whose telephone number is (571)270-1607. The examiner can normally be reached on (Mon-Fri from 8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2841

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeremy C. Norris/  
Primary Examiner, Art Unit 2841

A.A.  
February 9<sup>th</sup>, 2009